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AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A Hall sensor on a semiconductor substrate, the Hall sensor comprising: (1)

in which a Hall plate in the semiconductor substrate, the Hall plate comprising a first zone having a first conduction type (2) is formed from a zone (33, 32) of one conduction type;

a second zone in the semiconductor substrate, the second zone having a second conduction type;

in which a zone (33, 32) adjoining the Hall plate (2), which zone (33, 32) is separated from said Hall plate (2) by a space-charge zone in the semiconductor substrate, the space-charge zone separating the first zone and the second zone (41), of the other conduction type is provided; and

in which the Hall plate comprises first contacts (311, 312, 313, 314, 321, 322, 323, 324) for supplying a control current (IS), while the zone (32, 33) of the other [((Leistungetyp))] conduction type comprises to the first zone; and

second contacts (311, 312, 313, 314, 321, 322, 323, 324) for supplying a compensation current to the second zone (IK).

2. (Currently Amended) The Hall Sensor ~~according to~~ of claim 1, ~~in which further~~
~~comprising the Hall plate (2) is arranged between two zones (31, 33) of the other a third~~
zone of the second conduction type outside of the first zone relative to the second zone.

3. (Currently Amended) The Hall sensor ~~according to~~ of claim 1, wherein the
~~in which the Hall plate (2) is arranged on the surface of the substrate (1); and~~
~~in which the zone (32) of the other conduction type is embedded in a~~
semiconductor substrate (1) of has the second conduction type of the Hall plate (2).

4. (Currently Amended) ~~A method for operating a~~ The Hall sensor ~~according to~~
~~any one of claims 1 to 3; of claim 1,~~ wherein a the compensation current (~~IK~~) flows
parallel to the control current; and (~~IS~~)
wherein a whose magnitude is such that the thickness (~~D~~) of the Hall plate (~~2~~) is
~~essentially~~ substantially constant.

5. (New) The apparatus of claim 1, wherein the first zone has an area that is one of
cross-shaped, rectangular, square and circular.

6. (New) The apparatus of claim 1, wherein the second zone has an area that is
one of cross-shaped, rectangular, square and circular.

7. (New) The apparatus of claim 1, wherein the first zone is N-doped and the second zone is P-doped.

8. (New) An apparatus comprising:

- a first zone having a first doping, the first zone carrying a compensation current;
- a second zone having a second doping, the second zone carrying a control current;
- a third zone having the first doping;
- a first separation zone that separates the first and second zones, the compensation current affecting a thickness of the first separation zone; and
- a second separation zone that separates the second and third zones, the control current affecting a thickness of the second separation zone.

9. (New) The apparatus of claim 8, wherein the compensation current and the control current affect thicknesses of the first and second separation zones to maintain a substantially constant thickness of the second zone.

10. (New) The apparatus of claim 8, wherein the first zone has an area that is one of cross-shaped, rectangular, square and circular.

11. (New) The apparatus of claim 8, wherein the second zone has an area that is one of cross-shaped, rectangular, square and circular.

12. (New) The apparatus of claim 8, wherein the first and third zones are P-doped and the second zone is N-doped.

13. (New) The apparatus of claim 8, wherein the first and second separation zones comprise space-charged zones that are not doped.

14. (New) The apparatus of claim 8, wherein the first zone comprises contacts for receiving the compensation current; and
wherein the second zone comprises contacts for receiving the control current.

15. (New) An apparatus comprising:
a first zone having a first doping, the first zone carrying a control current;
a second zone having a second doping, the second zone carrying a compensation current; and
a separation zone that separates the first and second zones, the control current and the compensation current keeping a thickness of the first zone and a thickness of the separation zone substantially constant.

16. (New) The apparatus of claim 15, wherein the first zone has an area that is one of cross-shaped, rectangular, square and circular.

17. (New) The apparatus of claim 15, wherein the second zone has an area that is one of cross-shaped, rectangular, square and circular.

18. (New) The apparatus of claim 15, wherein the first zone is P-doped and the second done is N-doped.

19. (New) The apparatus of claim 15, wherein the separation zone comprises a space-charged zone that is not doped.

20. (New) The apparatus of claim 15, wherein the first and second zones comprise contacts for receiving current.